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mental query: is it self-evident as has been assumed that the return of "equal values," even if it were attainable, would constitute "just" repayment? The answer to this lies not, however, within the immediate province of this paper.

## STATISTICS AS AN INSTRUMENT OF INVESTIGATION IN SOCIOLOGY.

BY RICHMOND MAYO-SMITH, A.M., PROFESSOR OF POLITICAL ECONOMY  
AND SOCIAL SCIENCE IN COLUMBIA COLLEGE.

Sociology is the science giving us the facts of social organization.

How shall we arrange and classify these facts so as to explain them and formulate a theory of sociology?

Here we encounter many difficulties. The first is due to the astonishing complexity of human society, and the multitude of phenomena to be observed. How can we pretend to examine and understand all the facts of social organization and social activity?

The second difficulty is commonly expressed as that of defining and measuring social forces. It is very easy to speak of establishing or discovering relations of cause and effect. But here, as elsewhere, every cause is an effect, and every effect is the resultant of many causes, the intensity of which it is difficult to measure. Does city life cause the large amount of crime in large cities, or does the sex, age and parentage distribution of the population bring it about that a large amount of crime is localized, so to speak, in large cities? And if both factors are at work, as well as, say, a decline in the religious spirit which strikes the cities first, what part does each factor play in the result?

The more extensive cultivation of the statistical method would in my opinion help us part way out of these difficulties. It would make the phenomena more manageable and give us quantitative measurements of social forces.

It is true that the statistical method is not always necessary in order to arrive at generalizations in sociology. Some facts are of so striking a nature that mere observation enables us to understand and interpret them. It needs no statistics to show that in a primitive society a rude governmental organization co-exists with a simple economic organization employing little or no division of labor, and these two with gross fetichism, rude art, and a low ethical code.

The statistical method is sometimes inapplicable. It is difficult to measure the exact connection between economic condition and artistic development because music, painting, sculpture cannot be measured statistically, it being a question of quality and not of quantity.

But there are many phenomena and relations which can be expressed in figures. For instance all the divisions of mankind according to race and blood depend upon statistical observation. So do those social distinctions connected with occupation, social position and economic condition. Very important are the distinctions of sex, age and conjugal condition, because they affect almost all social phenomena, such as birth, death, crime, suicide, etc. Hence the sociologist must be acquainted with the technique of statistics, both the form of question and the methods of tabulation. He should seek to reduce his observations as far as possible to statistical form in order thereby to gain accuracy and precision.

*Discussion.*

Professor E. R. L. Gould: The subject has been so admirably and so comprehensively discussed, not in all its details, perhaps, but in representative features, that I think comments are almost unnecessary. I would like, however, to emphasize the hint thrown out by Professor Mayo-Smith in his remarks on the absolute necessity for training in statistical methods for sociologists, just as I would like to emphasize the desirability of practical statistical work for sociologists after they have completed academic courses of study. I think that if there are two classes of workers in the broad field of social science who ought to march together, they are statisticians and sociologists; still one can be neither a good statistician nor a good sociologist without knowing a good deal of both subjects. There are a great many limitations in the field of statistics which no one except the practical statistician knows anything about. Discrimination must be used in the selection and use of material which no one who is not familiar with the official processes of collecting data is able to guard himself against. There are many facts regarding the people, as for example, the degree of negro blood in the veins of our colored population, which it is utterly impossible to ascertain correctly.

Permit me to say that this Association ought to congratulate Columbia College upon the admirable example she has set to other institutions in making liberal provision for the study of sociology and statistics and the application of statistical methods to sociological research. It is sincerely to be hoped that the influence of her example may be fruitful elsewhere.